1. Which number is NOT equivalent to $3\frac{2}{3}$?

   (A) $\frac{11}{3}$

   (B) $3\frac{4}{6}$

   (C) $3.\overline{6}$

   (D) 3.6

2. Which fraction is equivalent to 0.375?

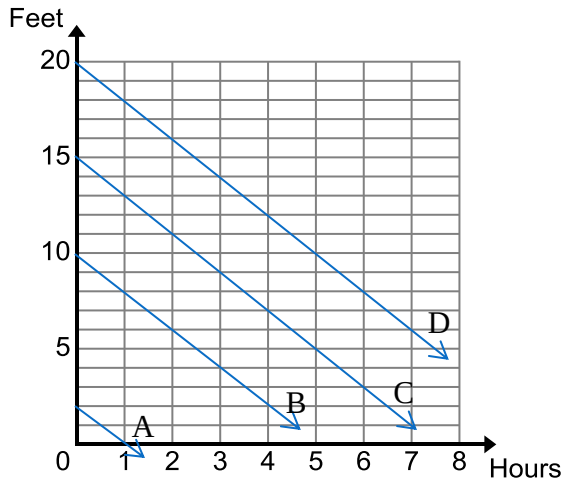
   (A) $\frac{15}{4}$

   (B) $\frac{7}{20}$

   (C) $\frac{3}{8}$

   (D) $\frac{1}{25}$

3. Andy and Bob want to remove a 15 foot block wall. They are able to take the wall down at a rate of 2 feet per hour. Which line best represents how fast the wall is coming down?



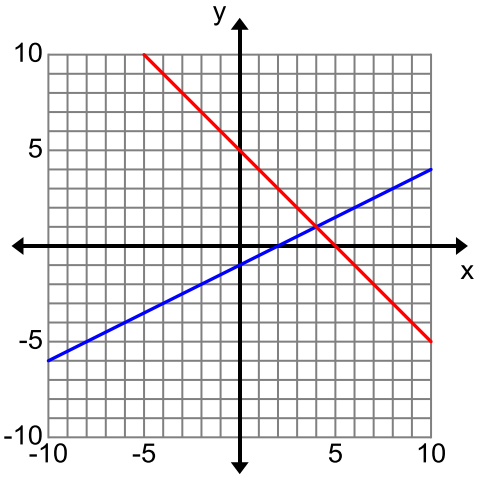
   (A) Line A

   (B) Line B

   (C) Line C

   (D) Line D

4. Which ordered pair is a solution of the system graphed?



   (A) $(0, -1)$

   (B) $(0, 5)$

   (C) $(4, 1)$

   (D) $(1, 4)$

5. What value of x makes the system of equations true?

$$y = 5x - 4$$
$$y = 12 - 3x$$

   (A) $x = 1$

   (B) $x = 2$

   (C) $x = 4$

   (D) $x = 8$

6. Currently, Nellie has $14 in her savings account. She plans to deposit $5 per week. Her brother currently has $50 in his savings account and plans to withdraw $4 per week. How many weeks will it take until both Nellie and her brother have an equal amount of money in their savings accounts?

   (A) 36 weeks
   (B) 27 weeks
   (C) 7 weeks
   (D) 4 weeks

7. Which equation has no solution?

   (A) $4(x-5)=4x-5$
   (B) $2x+6-3x=x+6$
   (C) $-3(4+x)=-3x-12$
   (D) $2x+1=5x+1$

8. Which expression is equivalent to $(4^3)^2$?

   (A) 4^1
   (B) 4^5
   (C) 4^6
   (D) 4^9

9. What is the value of 100^0?

   (A) 0
   (B) 1
   (C) 10
   (D) 1000

10. Write the fraction in simplest form.

$$\frac{24x^4y^2}{16x^5y^4}$$

   (A) $\frac{2x}{3y^2}$
   (B) $\frac{2}{3x^3}$
   (C) $\frac{3}{2xy^2}$
   (D) $\frac{3y^2}{2x}$

11. Complete the equation so that it has infinitely many solutions.

$$-4+9(6x-1)=(Mx+N)$$

   (A) $M=54$ and $N=5$
   (B) $M=54$ and $N=-13$
   (C) $M=50$ and $N=-9$
   (D) $M=6$ and $N=-1$

12. Solve for x.

$$.05(x+1)-1.5=0.3$$

   (A) $x=-26$
   (B) $x=4$
   (C) $x=16$
   (D) $x=35$

13. The length of a football field is written as $3\,x\,10^2$ units. Which unit best describes this length?

   (A) inches
   (B) feet
   (C) yards
   (D) miles

14. Which shows how a calculator might display the number 3.8×10^{-14}?

(A) $38 \text{ E } 10^{-14}$

(B) $38 \text{ E } {}^{-}14$

(C) $3.8 \text{ E } {}^{-}14$

(D) $3.8 \text{ E } 10$

15. 6×10^{5} is how many times as great as 3×10^{2}?

(A) 2 times

(B) 20 times

(C) 200 times

(D) 2000 times

16. Tommy and Larry began reading the same book at the same time. Each boy reads at different rates.

After 3 minutes, Tommy is on page 6.
After 6 minutes, Larry is on page 8.
Who is reading at a greater rate of change?

(A) Tommy's reading rate which is $1\frac{1}{3}$ pages/min.

(B) Larry's reading rate which is $1\frac{1}{3}$ pages/min.

(C) Tommy's reading rate which is 2 pages/min.

(D) Larry's reading rate which is 2 pages/min.

17. Kate borrows $450 from her mother and agrees to pay her back the same amount each month without interest. After 5 month she still owes her mother $360. Choose the linear function that models the amount Kate owed her mother each month since she borrowed the money.

(A) $y = 360 - 90x$

(B) $y = 360 - 18x$

(C) $y = 450 - 90x$

(D) $y = 450 - 18x$

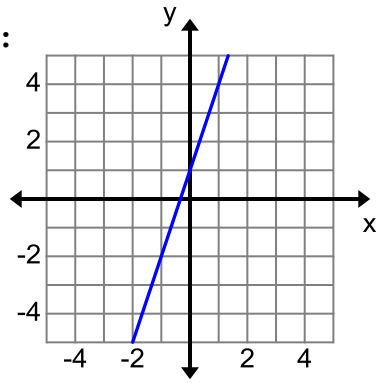
Use the given information to answer the following questions 18-20.

Function 1:

x	0	1	2	3
y	-3	0	3	6

Function 2: $y = 3x + 5$

Function 3:



18. What is the y-intercept for Function 1?
(A) -3
(B) 0
(C) 3
(D) 6

19. Which function has a greater rate of change?
(A) Function 1
(B) Function 2
(C) Function 3
(D) All are the same

20. Which function is a proportional relationship?
(A) Function 1
(B) Function 2
(C) Function 3
(D) None

21. The table shows points on a line.

x	3	1	-3	-9	-11
y	-3	1	9	21	25

What are the y-intercept and rate of change of the line?

(A) y −intercept = 3
Rate of change = -2

(B) y −intercept = 4
Rate of change = -4

(C) y −intercept = 8
Rate of change = 8

(D) y −intercept = -1
Rate of change = 12

22. What is 3.46×10^{5} written in standard form?
(A) 0.00000346
(B) 0.0000346
(C) 346,000
(D) 34,600,000

23. What is 0.00039 written in scientific notation?
(A) $3.9\ x\ 10^{-4}$
(B) 3.9×10^{-3}
(C) 3.9×10^{3}
(D) 3.9×10^{4}

24. How many solutions does the following system of equations have?

$$3(2x + 6) = y$$
$$2(3x + 9) = y$$

(A) One solution

(B) Two solutions

(C) Infinite solutions

(D) No solutions

25. What ordered pair satisfies both equations?

$$y = 2x + 3$$
$$y = -3x - 2$$

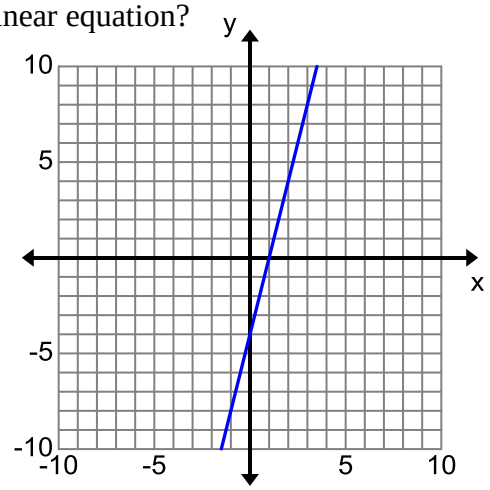
(A) $(2, 7)$

(B) $(1, 5)$

(C) $(-1, 1)$

(D) $(-2, 1)$

26. Given the graph of the line, what is the correct linear equation?



(A) $y = 4x + 1$

(B) $y = -4x + 1$

(C) $y = \frac{1}{4}x - 4$

(D) $y = 4x - 4$

27. Solve for a.

$$\frac{3}{4} + \frac{4a}{7} = \frac{6a}{7} + \frac{7}{8}$$

(A) $a = -\frac{13}{16}$

(B) $a = -\frac{7}{16}$

(C) $a = \frac{7}{16}$

(D) $a = \frac{49}{80}$

28. Classify these numbers by selecting all that apply.

$$\sqrt{2}, \sqrt{3}, \frac{\sqrt{7}}{2}$$

I. Integer

II. Irrational

III. Rational

IV. Real

(A) III and IV

(B) II and IV

(C) IV only

(D) II only

29. Which of the following representations are linear functions.

I.

$\{(2,7)(6,4)(0,3)(3,6)(1,5)\}$

II.

$y = 2^x$

III.

Input	–3	0	3	6	9
Output	–4	–3	–2	–1	0

(A) I only

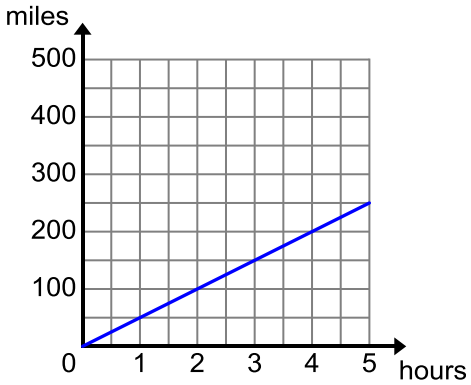
(B) III only

(C) II and III

(D) I and III

30. Which car is traveling at a faster rate?

Car #1:



Car #2:

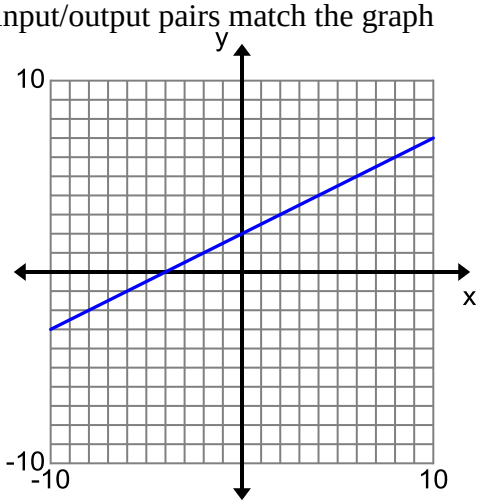
Hours	Miles driven
2	110
4	220
6	330

(A) Car #1

(B) Car #2

(C) They are the same.

31. Which input/output pairs match the graph below.



(A) $\{(2,0),\ (0,4),\ (4,4),\ (-2,1),\}$

(B) $\{(0,2),\ (-4,0),\ (4,4),\ (-2,1),\}$

(C) $\{(2,0),\ (0,4),\ (4,4),\ (2,-1),\}$

(D) $\{(0,2),\ (4,0),\ (4,4),\ (2,-1),\}$

32. The population of the southwest states, California, Nevada and Arizona are as follows.

California	$3.8\ x\ 10^7$
Nevada	$2.7\ x\ 10^6$
Arizona	$6.6\ x\ 10^6$

What is the total population of the three states the make up the southwest?

(A) $1.31\ x\ 10^6$

(B) $1.31\ x\ 10^7$

(C) $4.73\ x\ 10^7$

(D) $4.73\ x\ 10^6$

33. **Which of the following tables represent functions?**

I.

Input	Output
1	5
2	5
3	5
4	5

II.

Input	Output
2	1
8	7
6	5
4	3

III.

Input	Output
5	1
5	2
5	3
5	4

IV.

Input	Output
9	10
6	7
9	8
0	1

(A) II only

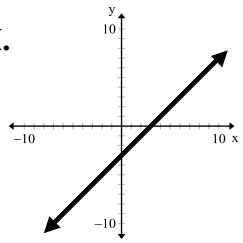
(B) I and II only

(C) II and IV only

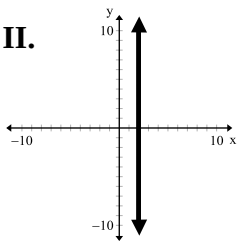
(D) III and IV only

34. **Which of the following graphs represent functions?**

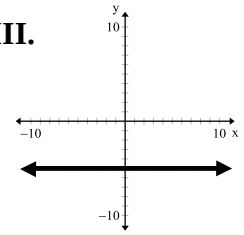
I.



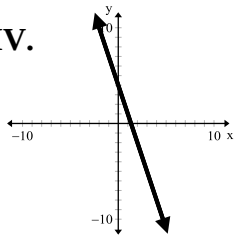
II.



III.



IV.



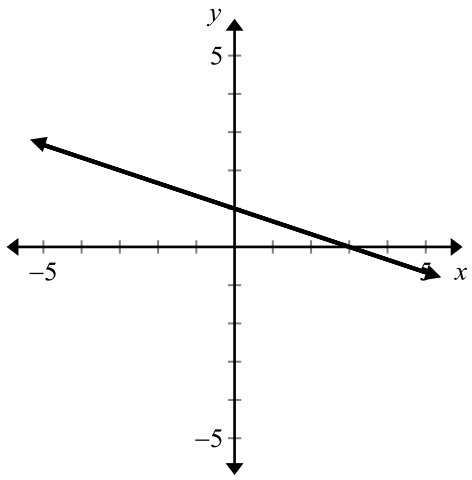
(A) II only

(B) I and IV only

(C) I, III, and IV only

(D) I, II, III and IV

35. **Use the graph:**



What is the equation of the line in the graph?

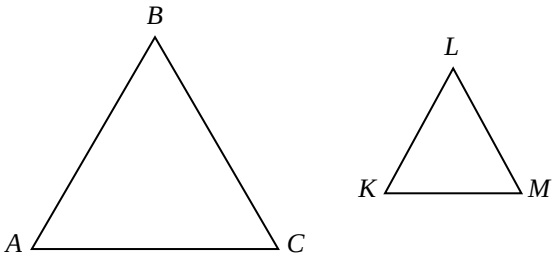
(A) $y = -\frac{1}{3}x + 1$

(B) $y = -\frac{1}{3}x + 3$

(C) $y = -3x + 1$

(D) $y = -3x + 3$

36. Triangle *ABC* is similar to triangle *KLM* where the ratio of proportionality is $\frac{2}{3}$, and *AB* = 12 centimeters.
What is *KL*?



(A) 2 cm

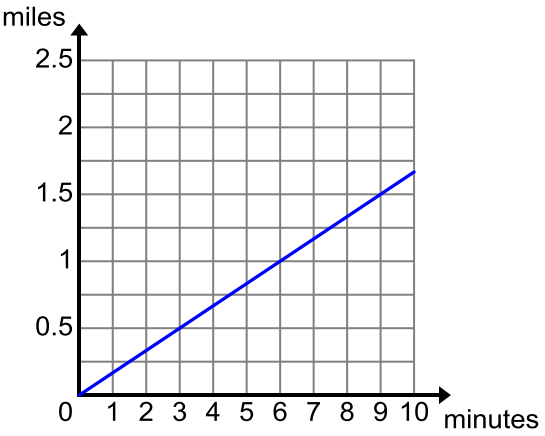
(B) 4 cm

(C) 8 cm

(D) 24 cm

37. Which boy had the fastest race time?

John:



Carlos:

$y = \frac{1}{6}x$

x is time in minutes
y is miles

(A) John

(B) Carlos

(C) They are the same.

38. For which equation is the set of ordered pairs a solution?

$$\{(-4,3),(2,0),(0,1),(-2,2)\}$$

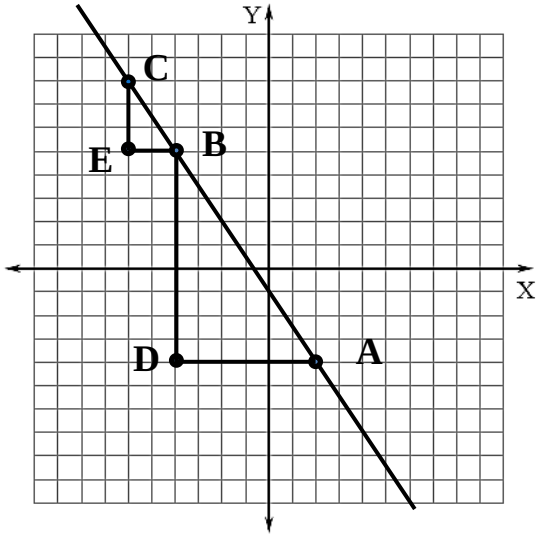
(A) $y = -2x$

(B) $y = 3x + 1$

(C) $y = -2x + 1$

(D) $y = -\frac{1}{2}x + 1$

39. In the diagram, $\overline{AB}$ is the hypotenuse of the right triangle ABD and , $\overline{BC}$ is the hypotenuse of the right triangle BCE.



Which statement(s) are true?

I. $\frac{CE}{CB} = \frac{BD}{DA}$

II. ΔABD is similar to ΔBCE.

III. The slope of $\overline{CB}$ is less than the slope of $\overline{BA}$.

(A) I and II only

(B) II and III only

(C) II only

(D) III only

Practice A Pre-Algebra 8 2013–2014 Semester 1 ExamFree Response

1. The table shows the approximate populations of several countries in 2009.

Country	Population
India	1,205,000,000
Japan	128,000,000
Russia	14.3×10^8
China	7.11×10^9

(a) Express the population of India in scientific notation.

(b) Express the population of China in standard notation.

(c) List the populations of all four countries from least to greatest. Explain how you got your answer.

2. Arty's Arcade has two different plans:

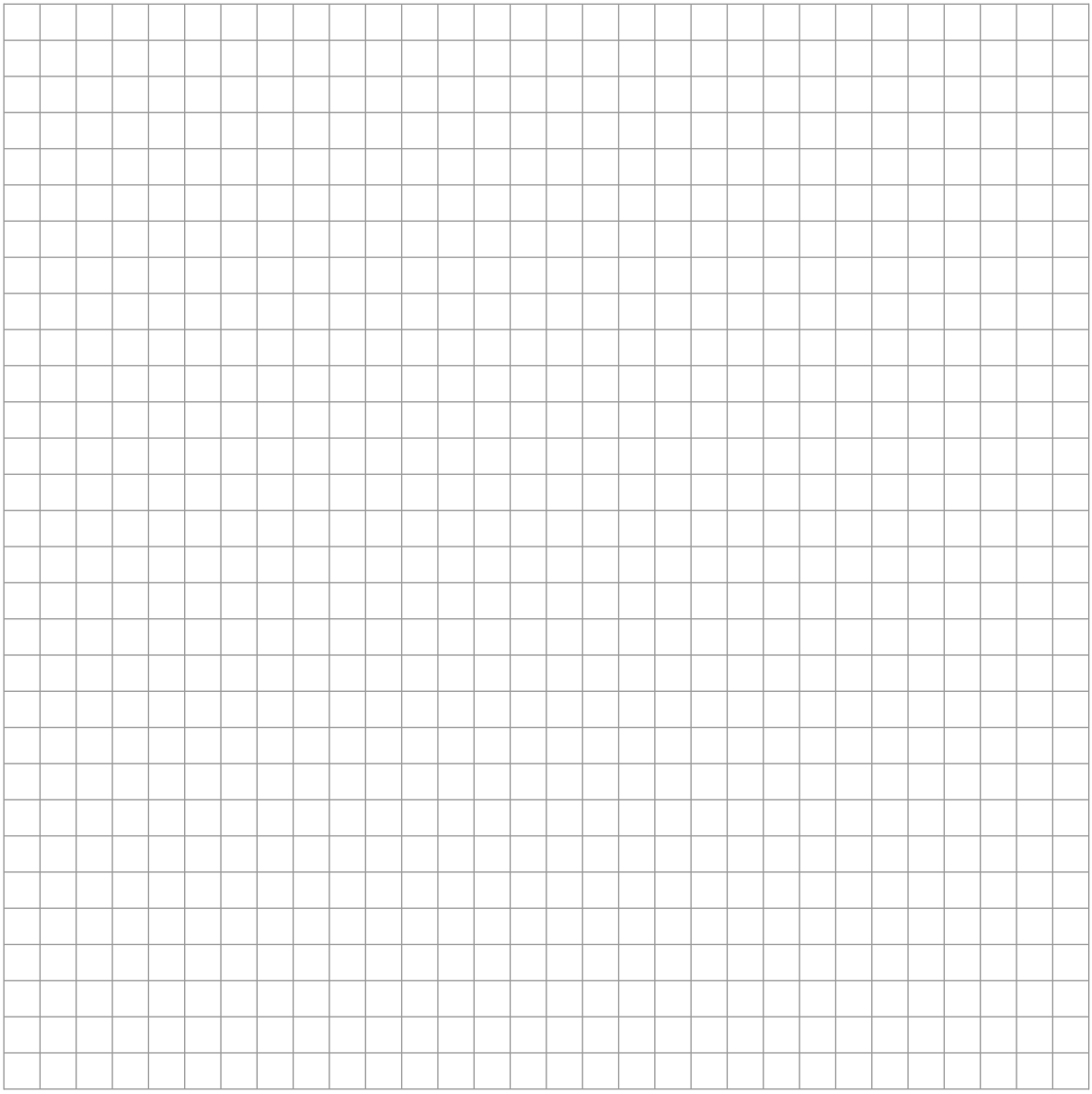
   Option One: $1.25 per game

   Option Two: $15 at the door and $0.50 per game

   (a) Let T = amount spent at the arcade and g = number of games played. Write linear equations to model Option One and Option Two.

   (b) Graph Option One and Option Two in a coordinate plane.

   (c) After how many games played will the amount spent for both options be equal? Show your work to support your answer.



3. Explain whether $\sqrt{3}$ is rational or irrational and why.